potentially toxic elements could lead to greater potential land application. Also, because soils deficient in organic matter utilize plant nutrients poorly, the application of compost with larger quantities of inorganic fertilizers could increase the potential productive capacity of selected soils. Additional research is needed to evaluate the potential benefits from compost and sewage sludge as a chelating agent.

Future studies should be concerned with the effects of various soil pH conditions on the uptake of elements by different plant species. Research should also be expanded to include effects of municipal compost on surface and ground waters, in addition to effects of accumulations of elements in soil and plants.

The plots used in this research should be monitored for an additional 5 years to determine the residual effects of crop yields and soil characteristics. Several selected crops should be used to determine uptake by various plants. The acidity of the plots should be altered to determine the effects of pH on the availability of elements that have accumulated in the soil after 5 consecutive years of high rates of compost applications.

BIBLIOGRAPHY

1. Kononova, M.M. 1966. "Soil Organic Matter," 2nd ed. *Pergamon Press*. New York. pp. 183-228.
2. American Public Works Association. 1966. "Municipal Refuse Disposal," 2nd ed. Public Administration Service. New York. pp. 279-314.
3. Brunner, D.R., S.J. Hubbard, D.J. Keller, and J.L. Newton. 1971. "Closing Open Dumps." Environmental Protection Agency Publication. (SW-61ts). pp. 1-19.
4. Gottas, Harold. 1956. "Composting." *World Health Organization Monograph*, 31. Geneva. pp. 22-23.
5. LeRiche, H.H. 1968. "Metal Contamination of Soil in the Woburn Market-Garden Experiment Resulting from the Application of Sewage Sludge." *Journal of Agricultural Science. 71*, 205-208.
6. Berrow, M.L., and J. Webber. 1972. "Trace Elements in Sewage Sludges." *Journal of the Science of Food and Agriculture. 23*, 93-100.
7. Terman, G.L., J.M. Soileau, and S.E. Allen. 1973. "Municipal Waste Compost, Effects on Crop Yields and Nutrient Content in Greenhouse Pot Experiments." *Journal of Environmental Quality* (in press).
8. Mays, D.A., G.L. Terman, and J.D. Duggan. 1973. "Municipal Waste Compost: Effects on Crop Yields and Soil Properties." *Journal of Environmental Quality. 2*, 89-92.
9. Bunting, A.H. 1973. "Experiments on Organic Manures, 1942-49. *Journal of Agricultural Science. 60*, 121-140.
10. Scarsbrook, C.E., R. Dickens, A.E. Hiltbold, H. Orr, K. Sanderson, and D.G. Sturkie. 1969. "Conservation of Resources in Municipal Waste," final report. Agricultural Experiment Station, Auburn University, Alabama. pp. 142-147.
11. Hinesly, T.D., R.L. Jones, and E.L. Ziegler. 1972. "Effects on Corn by Applications of Heated Anaerobically Digested Sludge." *Compost Science. 13(4)*, 26-30.
12. Vlamis, J., and D.E. Williams. 1972. "Utilization of Municipal Organic Wastes as Agricultural Fertilizers." *Compost Science. 13(11)*, 26-28.
13. Hortenstine, C.C., and D.F. Rothwell. 1968. "Garbage Compost as a Source of Plant Nutrients for Oats and Radishes." *Compost Science. 9(2)*, 23-25.
14. Environmental Protection Agency. 1971. "Composting of Municipal Solid Wastes in the United States." United States Environmental Protection Agency. Washington, D.C. pp. 1-96.

CUMULATIVE INDEX

VOLUME 15, No. 1 — VOLUME 17, No. 5

January-February, 1974 - November-December, 1976

C

Collection and Recycling

An Economic Garbage Collection and Recycling Service ... Jan.-Feb. '76 12
The "Ore Plan" for Recycling Household Solid Waste: An Alternative Garbage Collection System ... Jan.-Feb. '75 24
Modern Living Without Garbage Service ... Nov.-Dec. '74 30

Composting, Principles and Practices

Composting: A Review of Rationale, Principles and Public Health ... Summer '76 11
Sanitary Aspects of Composting in Mexico ... Mar.-Apr. '76 30
China Recycles Her Wastes by Using Them on the Land ... Autumn '75 16
The Potential of Composting in Developing Countries ... Jul.-Aug. '75 6
Principles of Municipal Composting—What the United States Can Learn From Mexico May-June '75 6
Composting Sludge in Germany ... Nov.-Dec. '74 31
Role of Composting in Waste Utilization ... Sep.-Oct. '74 24
Politics and Composting ... Sep.-Oct. '74 18
A Scientific Examination of the Principles and Practice of Composting ... Summer, '74 24
Biological Reactions in Solid Waste Recovery Systems ... Summer, '74 2

Composting Toilets and On-Site Waste Treatment

Making Septic Tank Systems Work ... Sep.-Oct. '76 27
Why We Need Alternative On-Site Systems ... Sep.-Oct. '76 25
The Toa-Throne—A New Compost Toilet ... Sep.-Oct. '76 16
Private Profit and Public Waste: The Connection ... Sep.-Oct. '76 13
Building, Health Codes and Composting Privies ... Summer, '76 17
The Farallones Composting Privy ... Summer, '76 15
New Options for a Sewerless Society ... Summer, '76 7
The Clivus Multrum Composting Toilet ... Nov.-Dec. '74 28
The Mullbank Toilet ... Nov.-Dec. '74 23

E

Equipment

Screening Shredded Municipal Solid Waste ... Jan.-Feb.' 76 7
The Cal Recovery System ... Autumn, '75 18
Equipment for Incorporating Sewage Sludges Into the Soil Sep.-Oct. '74 31
On Grinder Wear in Refuse Comminution ... Sep.-Oct. '74 5

F

Fertilizers, Soil and Food Production

The Oxygen-Ethylene Cycle and the Value of Compost ... Mar.-Apr. '76 23
Can Organic Manures Improve Crop Production in Southern India? ... Mar.-Apr. '76 7
Nebraska Studies Methods to Use Waste in Farming ... Jan.-Feb. '76 31
The Economic Value of Organic Matter in Crop Production ... Autumn, '75 24
The Business of Processing and Marketing Wastes As Fertilizer and Soil Conditioner ... May-Jun. '75 25
How Farmers Can Reduce Fertilizer Bills by Using On-Farm Wastes and Urban Sludge ... May-Jun. '75 14
Food Security and Wastes Security Throughout the World . May-Jun. '75 4
Management Procedures for Effective Fertilization With Poultry Manure ... Jan.-Feb. '75 5
Organic Management Reduces Leaching of Nitrate ... Nov.-Dec. '74 11
Energy Expenditure and Food Production ... Sep.-Oct. '74 29
Apply Natural Fertilizer in Volume ... Jan.-Feb. '74 14

I

Industrial and Agricultural Wastes

Kiln Dust From Cement Factories for Vacuum Filter Processing of Sewage Sludge ... Jul.-Aug. '75 28
Domestic Cellulose Waste ... Jan.-Feb. '75 16
Compost From Blowroom Cotton Dust ... Nov.-Dec. '74 32
Combining Municipal Waste

with Feedlot Waste ..... Sep.-Oct. '74 20
Potential of Spent Tea Leaves for Animal Feeds and Composting ..... Mar.-Apr. '74 28

L

Leachate
Organic Management Reduces Leaching of Nitrate ..... Nov.-Dec. '74 11
The Role of Evaporation in Determining Leachate Production from Milled Refuse Landfills Mar.-Apr. '74 11

Leaves, Municipal Use and Treatment
Berkeley's Composting and Leaf Banking Program ..... Sep.-Oct. '76 18
Composting Leaves Saves Money in Bangor, Maine .... Jan.-Feb. '75 23
A Two-Way Deal With Leaves Nov.-Dec. '74 20
Composting Leaves by New Jersey Municipalities: Survey and Assessment ..... Nov.-Dec. '74 6

M

Manure
Can Organic Manures Improve Crop Production in Southern India? ..... Mar.-Apr. '76 7
Spray Irrigation of Dairy Cattle Manure Effluent For Maximizing Crop Production ..... Jan.-Feb. '75 10
Management Procedures for Effective Fertilization With Poultry Manure ..... Jan.-Feb. '75 5
Manure Gets "Re-Discovered" Mar.-Apr. '74 24
Using Poultry Manure Compost to Reclaim Salt-Polluted Soils Mar.-Apr. '74 22

Marketing
The Use of Sludge Should Be A Business ..... May-Jun. '75 28
The Business of Processing and Marketing Wastes As A Fertilizer and Soil Conditioner .... May-Jun. '75 25
Nu-Earth—Chicago's Merchandising Program ..... May-Jun. '75 22

Methane
Anaerobic Digestion of Solid Waste and Sewage Sludge Into Methane ..... Jan.-Feb. '76 26
How Taiwan Homestead Farmers Make Methane Work For Them ..... Autumn, '75 30
Methane Generation on a Farm Autumn, '75 28
Company Formed to Advise on Methane Plants ..... Nov.-Dec. '74 15
Methane Gas Production as Part of a Refuse Recycling System ..... Summer, '74 7
Perpetual Methane Recovery System ..... Mar.-Apr. '74 14
Methane Digester Draws Farm Show Crowd ..... Jan.-Feb. '74 13

R

Reclaiming Strip-Mined Lands
Revegetating Bituminous Strip-Mine Spoils With Municipal Wastewater: Part II ..... Autumn, '75 10
Revegetating Bituminous Strip-Mine Spoils With Municipal Wastewater: Part I ..... Jul.-Aug. '75 20
Evaluation of Municipal Refuse Compost for Ash Pond Stabilization ..... Jan.-Feb. '74 26
Reclaiming Strip Mines at Ralzo ..... Jan.-Feb. '74 24
Treat Stripmine Spoils With Sewage Sludge ..... Jan.-Feb. '74 22

Recycling and Resource Recovery
The Oregon Bottle Bill - What It Means to Recycling ..... Sep.-Oct. '76 10
The Role of Ore Plan in Developing a Nationwide Recycling Network ..... Summer, '76 25
Health Aspect Considerations Associated with Resource Recovery ..... Summer, '76 18
High Technology Recycling: Costly and Still Wasteful .... Mar.-Apr. '76 28
Compost: From Waste to Resource ..... Mar.-Apr. '76 26
Recycling on a Small Scale in Indiana ..... Mar.-Apr. '76 25
The Nottingham System for Resource Recovery ..... Jan.-Feb. '76 20
A "Homemade" Recycling Center ..... Jan.-Feb. '76 18
An Economic Garbage Collection & Recycling Service .... Jan.-Feb. '76 12
Compulsory Collection of Waste Paper in Sweden ..... Autumn, '75 31
Public Acceptance of Wastes as a Resource ..... May-Jun. '75 30
Recycling Wastes: A Field Trip to Beltsville ..... May-Jun. '75 16
The Uses and Abuses of Waste May-Jun. '75 11
An Excerpted Review of Advanced Solid Waste Processing Technology ..... Mar.-Apr. '75 28
The "Ore Plan" for Recycling Household Solid Waste: An Alternative Garbage Collection System ..... Jan.-Feb. '75 24

S

Sludge and Wastewater Utilization
Transporting Liquid Sewage Sludge by Tank Truck ..... Sep.-Oct. '76 28
Chicago's Program for Using Sludge to Reclaim Land ..... Sep.-Oct. '76 22
Reclamation of a Burned Anthracite Refuse Bank With Municipal Sludge ..... Mar.-Apr. '76 12
"Sludges no Obvious Hazard" Jan.-Feb. '76 32
Anaerobic Digestion of Solid Waste and Sewage Sludge Into Methane ..... Jan.-Feb. '76 26
Sewage Sludge Converted Into Compost in Bangor, Maine ... Jan.-Feb. '76 25
Wastewater Renovation and Reuse ..... Autumn, '75 26
As Philadelphia Goes, So Goes The ..... Autumn, '75 22
Revegetating Bituminous Strip-Mine Spoils With Municipal Wastewater: Part II ..... Autumn, '75 10
New Sewage Plan Studied on West Coast ..... Autumn, '75 9
Brookhaven's Two Sewage Treatment Systems ..... Autumn, '75 7
Marshes and Wetlands May Provide Safe Community Tertiary Sewage Treatment ..... Jul.-Aug. '75 31
Kiln Dust From Cement Factories for Vacuum Filter Processing of Sewage Sludge ..... Jul.-Aug. '75 28
Facing Up to Sludge Disposal in New Jersey ..... Jul.-Aug. '75 26
Revegetating Bituminous Strip-Mine Spoils With Municipal Wastewater: Part I ..... Jul.-Aug. '75 20
Farming and Municipal Sludge: They're Compatible . Jul.-Aug. '75 16
Brookhaven's Enlightened Solutions To Its Waste Problems ..... Jul.-Aug. '75 8
Enrichment of Urban Soil With Composted Sludge and Leaf Mold - Constitution Gardens . May-Jun. '75 18
Recycling Wastes: A Field Trip to Beltsville ..... May-Jun. '75 16
Can Soils Be Used for Sewage Sludge Disposal? ..... Mar.-Apr. '75 22
Sewage Sludges—Management Aspects for Land Application ..... Mar.-Apr. '75 12
Can Water Hyacinths "Eat Pollution?" ..... Mar.-Apr. '75 11
Minnesota Researches ... Disposal of City Wastes On ... Land ..... Mar.-Apr. '75 8
Pennsylvania's Sewage Sludge Research & Extension Program Mar.-Apr. '75 6
Oklahoma Announces Policy on Municipal Wastewater Reuse ..... Jan.-Feb. '75 22
Sludge in the "Mile-High" City ..... Jan.-Feb. '75 20
Lagooning Domestic Sewage Effluents ..... Nov.-Dec. '74 16
The American Farmer and His Right to Apply Sewage Sludge to His Land ..... Sep.-Oct. '74 12
Chicago's Prairie Plan - Why Does It Work and What Does It Mean to Other Cities? ..... Summer, '74 22
Sewage Sludge Aids Farm Crops in West Chester, PA ... Mar.-Apr. '74 20
Survey of Sewage Sludge Research at Agricultural Experiment Stations ..... Mar.-Apr. '74 16
Disposal of Sludge on Land: Effect on Soils, Plants and Ground Water ..... Mar.-Apr. '74 6
Treat Stripmine Spoils with Sewage Sludge ..... Jan.-Feb. '74 22
Virginia City Uses Liquid Sludge to Grow Crops ..... Jan.-Feb. '74 18
Developing A Safe Way to Recycle Sewage Sludge on the Land ..... Jan.-Feb. '74 6

W

Wood Wastes
Composting of Bark From Pulp Mills and the Use of Bark Compost as a Substitute for Plant Breeding ..... Sep.-Oct. '76 6
Composting of Hardwood Bark Jul.-Aug. '75 12
Hardwood Bark Mulches Control Roadside Erosion in Illinois ..... Jan.-Feb. '75 15